

WHAT IS CLAIMED IS:

1. A method of granting access to a bus to one of a plurality of requesting communication circuits that each submitted a bus control request during a request period of an arbitration period, the method comprising the steps of:
 - determining a stored identity associated with the arbitration period, the stored identity identifying a communication circuit; and
 - determining whether any requesting communication circuit has an identity that matches the stored identity.
2. The method of claim 1 and further comprising the steps of:
 - identifying a matching communication circuit when a requesting communication circuit has an identity that matches the stored identity,
 - reading a stored priority associated with the arbitration period, the stored priority indicating a priority level of a data cell of the communication circuit; and
 - determining whether a priority of the matching communication circuit matches the stored priority.
3. The method of claim 2 and further comprising the step of when the priority of the matching communication circuit matches the stored priority, outputting a grant to the matching communication circuit.
4. The method of claim 3 wherein priority information is stored in a priority table that has a plurality of rows.
5. The method of claim 4 wherein each row of the priority table corresponds with an arbitration period.

6. The method of claim 3 and further comprising the step of when a requesting communication circuit does not have an identity that matches the stored identity, determining a selected communication
5 circuit from the plurality of requesting communication circuits.

7. The method of claim 6 wherein the selected communication circuit is determined by:
identifying the requesting communication circuits that have a high
10 priority data cell to transmit and are enabled for high priority arbitration;
and
arbitrating between the requesting communication circuits that have a high priority data cell to transmit and are enabled for high priority arbitration to determine a selected communication circuit from
15 the plurality of requesting communication circuits.

8. The method of claim 7 wherein the selected communication circuit is further determined by:
when there are no high priority data cells,
20 identifying the requesting communication circuits that have a medium priority data cell to transmit and are enabled for medium priority arbitration; and
arbitrating between the requesting communication circuits that have a medium priority data cell to transmit and are enabled for medium
25 priority arbitration to determine a selected communication circuit from the plurality of requesting communication circuits.

9. The method of claim 8 wherein the selected communication circuit is additionally determined by:
30 when there are no medium priority data cells,

identifying the requesting communication circuits that have a low priority data cell to transmit and are enabled for low priority arbitration; and

5 arbitrating between the requesting communication circuits that have a low priority data cell to transmit and are enabled for low priority arbitration to determine a selected communication circuit from the plurality of requesting communication circuits.

10 10. The method of claim 9 wherein the selected communication circuit is arbitrated with a round robin.

15 11. The method of claim 3 wherein the priority of the requesting communication circuit is the priority of a data cell to be transmitted onto the bus by the requesting communication circuit.

12. The method of claim 12 wherein the grant gives the communication circuit permission to transmit on a bus.

20 13. The method of claim 4 wherein each row of the priority table includes bits that identify a communication circuit.

25 14. The method of claim 13 wherein each row of the table includes bits that identify a priority of a data cell of the communication circuit.

15. A communications circuit comprising:
a transmit circuit that transmits information onto a cell bus;
a receive circuit that receives information from the cell bus;

a memory that stores grant information regarding a plurality of arbitration periods, the grant information for each arbitration period including a stored identity that identifies a communication circuit; and

5 a logic circuit connected to the transmit circuit, the receive circuit, and the memory that determines whether any communication circuits requested control of a bus during an arbitration period, the logic circuit determining a stored identity associated with the arbitration period, and determining whether any requesting communication circuit has an identity that matches the stored identity.

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16. The communications circuit of claim 15 wherein when a requesting communication circuit has an identity that matches the stored identity, the logic circuit identifies the requesting communication circuit as a matching communication circuit, reads a stored priority
15 associated with the arbitration period, and determines whether a priority of the matching communication circuit matches the stored priority, the stored priority indicating a priority level of a data cell of the communication circuit.

20 17. The communications circuit of claim 16 wherein when the priority of the matching communication circuit matches the stored priority, the logic circuit outputs a grant to the matching communication circuit.

25 18. The communications circuit of claim 15 wherein grant information is stored in a priority table that has a plurality of rows.

19. The communications circuit of claim 18 wherein each row of the priority table corresponds with an arbitration period.

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20. The communications circuit of claim 15 and further comprising an arbitration enable register connected to the logic circuit.

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